

12-1 Practice***Experiments, Surveys, and Observational Studies***

State whether each situation represents an *experiment* or an *observational study*. Identify the *control* group and the *treatment* group. If it is an experiment, determine whether there is bias.

1. Find 300 students, half of whom are on the chess team, and compare their grade point averages.
2. Find 1000 people and randomly split them into two groups. Give a new vitamin to one group and a placebo to the other group.

Determine whether each situation call for a *survey*, an *observational study*, or an *experiment*. Explain the process.

3. You want to compare the health of students who walk to school to the health of students who ride the bus.
4. You want to find out if people who eat a candy bar immediately before a math test get higher scores than people who do not.

Determine whether the following statements show *correlation* or *causation*. Explain.

5. If I jog every day, I can complete a marathon in three hours.
6. When there are no clouds in the sky, it does not rain.
7. Studies show that taking a multivitamin leads to a longer life.
8. If I study for three hours, I will earn a grade of 100% on my history test.